**Abstract:**

**Objective:** To conduct a cost-benefit analysis of a quality improvement program (QIP) for malnourished hospitalized patients.

**Methods:** The QIP utilized a prospective, two-group, pre-post, multi-site design. Historical controls were utilized to determine baseline 30-day readmission rates for malnourished patients receiving oral nutritional supplements (ONS). These rates were compared to 30-day readmission rates of two prospective cohorts (“QIP” and “QIP+”) in 4 hospitals of a large system. In 2 QIP hospitals (n=399), the Electronic Medical Record (EMR) was upgraded to include a validated malnutrition screening tool and automatic condition-specific administration of ONS for all patients at risk for malnutrition. Two QIP+ hospitals (n=500) implemented the same improvements as the QIP group along with accelerated delivery of ONS, ONS patient education at discharge, and post-discharge patient compliance calls.

**Results:** Both groups achieved a statistically significant reduction in 30-day readmissions compared to historical controls: 22% for QIP (p<0.01) and 18% for QIP+ (p<0.01). The costs of the QIP- and QIP+ programs were $49,564 and $40,142, respectively. Fixed costs included hospital administration; information technology; QIP management; and healthcare provider allocation. Variable costs included post-discharge calls and patient screening/education. QIP+ savings was based on a 22% reduction in 30-day readmission rates where baseline readmissions were estimated to be 100 (20% of 500) and was reduced to 78 (15.6% of 500). Using a readmission cost of $18,478 (Philipson et al., 2013), a savings of $406,516 from avoided readmissions was noted; when subtracting the $49,564 program costs, a $374 per patient net savings was achieved. Likewise, the QIP group realized a $51,145 savings from avoided readmissions, and a $63 per patient net savings.

**Conclusions:** A rapid, comprehensive ONS QIP was found to reduce 30-day readmissions among malnourished hospitalized patients resulting in improved patient outcomes and reduced costs.

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**Introduction:**

- General benefits of oral nutritional supplements (ONS) both in the community and in hospitals include decreased mortality and morbidity; decreased hospital length of stay; improved quality of life; and reduced readmission rates and costs.
- There is lack of research examining the practical aspects of implementing changes specific to ONS consumption when...
- Incorporating a valid, easy-to-use malnutrition screening tool upon admission
- Developing and reordering ONS consumption

**OBJECTIVE:**

- Conduct a cost-benefit analysis of an ONS quality improvement program (QIP) for malnourished hospitalized patients admitted at 4 hospitals of Advocate Health Care, the largest healthcare system in Illinois, USA
- The primary goal was to demonstrate an absolute difference of 4% reduction in 30-day readmission rates when compared to pre-QIP historical readmission rates (Sriram et al., 2016)

**Methods:**

- Pre-QIP readmission rate for historical comparison was 20%
- QIP and QIP+ groups each consisted of 2 hospitals (a teaching hospital and a community hospital)
- Electronic Medical Record (EMR) was upgraded to include Malnutrition Screening Tool (MST) and automatic condition-specific ONS administration to all patients who were screened as malnourished or at-risk for malnutrition
- Education and implementation of QIP covered over a 6-month rolling admission period
- Cost-benefit / business intelligence tool based on Advocate Health Care study data was developed by Center for Applied Value Analysis (CAVA), Inc.

**Results:**

- Data from 1269 patients enrolled between October 2013 and April 2015 were analyzed: QIP, n=769; QIP+, n=500
- Between the two QIP groups, the demographic, clinical characteristics, and length of stay were comparable

**Readmissions:**

- 22 prevented readmissions x $18,478 average readmission cost = $406,516 (22% RRR)
- Total QIP+ Program Cost = $49,564
- Net Savings: $714 Per QIP+ Patient Treated

**Conclusions:**

- A rapid, comprehensive ONS QIP can:
  - Significantly decrease 30-day unplanned hospital readmissions among malnourished inpatient population
  - Reduce healthcare costs from avoided readmissions
  - Improve hospital and patient savings

- Effective readmission rates in both QIP and QIP+ decreased by 0.18% (p=0.21)

**Cost-Effeciveness:**

- Base case 30-day readmission rates in malnourished patients / patient characteristics used in the model
- Allows hospital-specific analyses; key outcomes of the tool: 30-day readmissions, related 30-day readmission costs, program costs, total costs (savings) comparing baseline (no intervention) versus QIP+, baseline versus QIP, or QIP versus QIP+}

**References:**